Australian Society for Limnology Inc.

NEWSLETTER

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June 2012

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ASL Australian Society for Limnology

AUSTRALIAN SOCIETY FOR LIMNOLOGY INC.

The Australian Society for Limnology Inc. (ASL) is an Australian based scientific society whose focus is the study and management of inland waters. The ASL was established in 1961, and has a current membership of over 650 researchers, managers, engineers, teachers and tertiary level students from all states and territories. Members have a strong professional interest in inland aquatic issues, including the maintenance of biodiversity, the maintenance and/or restoration of water quality, and the wise use of aquatic resources. The Society also has a strong interest in fostering the scientific and intellectual development of tertiary students.

The Society includes members working in government agencies, tertiary institutions and many industries related to aquatic resources. Through their daily activities, members have contact with local communities and are in a sound position to interpret and advise on inland water issues. The Society has a substantial knowledge base, and has assumed a responsibility to ensure that this is available to those who manage inland waters.

Accordingly, the charter of the ASL is to further our understanding of Australia's inland waters and to promote their wise use and sustainable management. In this manner we will contribute to the continued existence of this valued resource and the maintenance and enhancement of the quality of life for all Australians. The ASL regularly produces a newsletter with notes on limnological activities, articles of interest, book reviews and announcements of upcoming events likely to be of interest to Members.

ASL Home Page
www.asl.org.au

Or on Facebook
http://www.facebook.com/groups/australiansocietyforlimnology

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PRESIDENT's REPORT

ASL has a new web page. Same address at www.asl.org.au; but an all new look and new handy features to help improve communication among members. Lots of thanks need to go to Jacqui and the folks at ASN for helping me build the new site. We have a new section for members, a dedicated section for students, and a news-events-adverts section for members to post information. Linked to the news is an rss feed, which members can subscribe to and receive news sent directly via email. If you wish to post information on the site to members, please contact me or ASN. Please have a look at the new site, subscribe to the news feed and contribute any job adverts, conferences, news and information for members, and let me know if there are any things we need to fix or if you have ideas to add to the page.

Coinciding with the release of the new web page is the opening of registration and abstract submission for the 51st ASL Congress to be held in Armidale NSW from Nov 26th 2012. We are seeking contributions for Symposia and Special Sessions at the Congress, if you have ideas please contact Michael Reid or Melissa Parsons at UNE.

At a recent ASL executive teleconference we discussed how the Society should manage ideas from members for state-based activities designed to foster local interactions with members and to encourage new members to the Society. We resolved that $500 would be set aside each year for each state, with activities coordinated by the state representative. In addition, we have developed a policy for how ASL can contribute to larger events such as conferences/workshops such as the Tasmanian Forum in mid-July and Bioassessment conference in Canberra in 2013. The executive are keen to foster these activities so please chat to your state member with ideas for activities.

In wonderful news for ASL, **Prof Barry Hart** has been made a Member of the Order of Australia through the Queen's Birthday honours list for service to conservation and the environment particularly in the areas of water quality, aquatic ecology and catchment management, and to education as an academic and researcher. Congratulations to Barry on well-deserved recognition for his achievements.

Darren Ryder

June 2012

"I know you were elected class president but that doesn't mean you're in charge."

EDITOR's REPORT

Hello from the Editor's desk (and on behalf of my busy deputy editors). It's been a real pleasure pulling together this edition, with lots of contributions from across Australia. THANK YOU to all of those contributors.

I'm going to put in a shameless plug for the ASL Congress here – calls for registration and abstracts are open NOW. It's in a beautiful part of the world and it should be a really fun meeting. For students there are as usual opportunities for support from ASL. NZFSS and ES Australia meetings are in the week after ASL so you can compound your liver damage and pick one of those two to attend as well.

Of note in this edition is Gary Jones' report on the end (for now at least) of the freshwater CRC era in Australia. There is a great overview of some of the events around the end of eWater, and information on where to from here – check that out on pages 26 and 28.

Finally I am happy to introduce another two new sections into the newsletter.
'High profile limnology' will highlight high profile international journal articles, books or reports with ASL members as authors. This time we highlight Sally Hladyz's recent paper in Science. I am calling for nominations of RECENT papers for future editions... drop me an email.
'From the archives' will ask senior members of the ASL community what their memories of the society are. Thanks to Cath Leigh for pulling this together.

Other than that ... hope all is well with all... sign up for ASL in Armidale!!!!

Ross

NEWSLETTER EDITOR:

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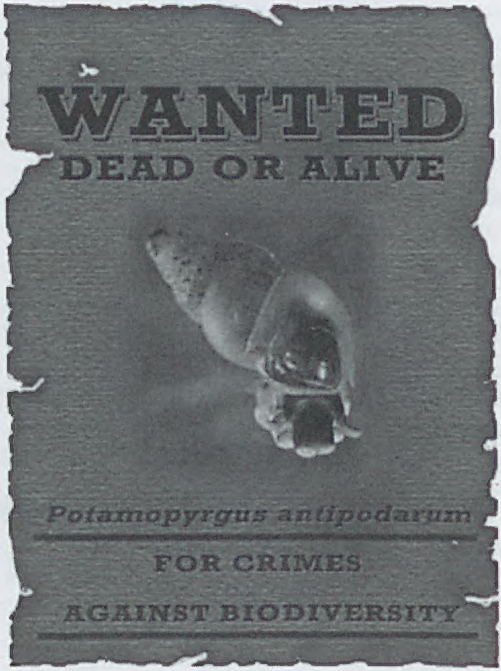
University of Ballarat (Mt Helen)

The Australian Society of Limnology has a Facebook page!!

If you are on Facebook, then 'friend' us. If you aren't on Facebook, here is the incentive you have always needed to join.
Click here to go to Facebook now.

GENERAL ANNOUNCEMENTS



Have you seen this snail?

Potamopyrgus antipodarum is a freshwater invader on a rampage. A native of NZ, *P. antipodarum* has been sighted in Europe, Asia and the U.S. So far only reported in south-eastern Australia, *P. antipodarum* has the potential to invade waters across the continent - from estuaries, to lakes, to geothermal springs.

This canny invader goes under many aliases, including *Potamopyrgus jenkinsi,* New Zealand mudsnail and Jenkins' Spire snail. While a quick getaway is unlikely, the spread of *P. antipodarum* is aided by human, avian and fish dispersal vectors, meaning their advance is by no means occurring at a snail's pace!

Potamopyrgus antipodarum can be typically picked off macrophytes and rocks with ease, and spotting them is similarly simple – while only reaching 3-7mm, populations as dense as 100,000's m^{-2} tend to make them quite conspicuous.

As part of my PhD studies I am looking at the genetic diversity and spatial structuring of *P. antipodarum* in Australia. To do this I require samples from populations across the country. Perhaps you've seen *P. antipodarum* in your macroinvertebrate sampling? Perhaps you're keen to have a look around for this molluscan Genghis Khan next time you're out sampling? Either way I would love to hear from you.

P. antipodarum is not violent by nature and should be considered unarmed and not dangerous, unless of course you're a native competitor.

Adrian Dusting
PhD Candidate, Monash University, Clayton
adrian.dusting@monash.edu, (03) 9905 0905

OLDIES BUT GOODIES: CLASS SETS AVAILABLE

Two guides for catchment managers are available from the eWater CRC archives.

Conserving Natural Rivers by Peter Cullen, and *Assessing River Condition Using Existing Data* by John Whittington, are the two parts of the 'River Management Series' published in 2002 by the CRC for Freshwater Ecology.

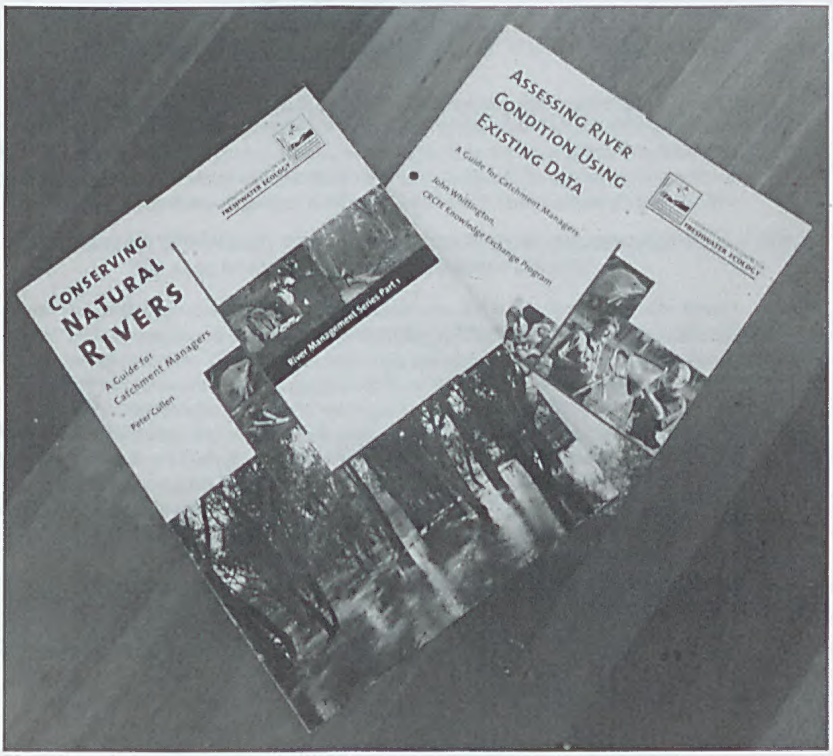
Conserving Natural Rivers discusses (obviously) the protection of natural rivers, including: why do it; threats and how to reduce them; decisions needed by catchment authorities; and how to tell if *your* local river is of regional or national value.

Assessing River Condition.. covers: why and how to assess river condition; considerations in compiling relevant data and in doing the assessment; and communication tips. As it points out:

> *A well communicated assessment of river condition provides the foundation for effective regional planning and management of rivers.*

These should be useful for teaching undergraduates, for example, quite apart from the value of having a copy or three on your shelf as a memento of those CRCFE days. Relatively large numbers of them are available, and it'll be 'first-in first-served'.

Please email contact@ewater.com.au, saying how many copies of each you want, and where to send them.


Conserving Natural Rivers
A Guide for Catchment Managers
Peter Cullen
River Management Series Part 1
Assessing River Condition Using Existing Data
A Guide for Catchment Managers
John Whittington
CRCFE Knowledge Exchange Program

ACT seminar and pub night

Tuesday July 3rd 2012

University of Canberra Room 2B7 – 5:45pm

Followed by drinks and nibbles at Zierholz @ UC!!

Cost: $10 (pay on the night)

RSVP by Thursday 28th June to Evan Harrison (Evan.Harrison@canberra.edu.au)

Speaker: Professor Trefor Reynoldson

Trefor is a Professorial Fellow in Freshwater Ecology at the Institute for Applied Ecology (University of Canberra). His research interests include- benthic macroinvertebrate community dynamics and their application to the bioassessment of aquatic ecosystems; the development of numerical biological criteria for application in water resource management and; integrating multiple lines of evidence in decision making frameworks.

A COMPARISON OF RIVER CONDITION ASESSMENT (RCA) PREDICTIVE MODELS: A GENERAL SUMMARY BASED ON A COMMON DATA SET

Classification (cluster analysis) followed by Discriminant Function analysis (DFA) has been the standard approach used in RCA predictive models since the development of RIVPACS. At a workshop organized in 1999 there was discussion of the need to consider alternative modelling approaches but the conclusion at that time was that it was unwarranted. However, another decade has passed and a number of different approaches are now available. This talk reports the results of the analysis of a single data set using nine different modelling and assessment methods. These approaches include machine- learning methods (neural networks and Bayesian statistics) as well as more-traditional grouping and non-grouping strategies. The results from these new approaches have been compared to results from standard models developed using the AUSRIVAS/RIVPACS and CABIN modelling and assessment methods.

Institute for Applied Ecology

ASL 2012 Tasmanian Forum

http://www.asl.org.au/asl-2012-tasmanian-forum/

In additional to the 2012 Tasmanian ASL pub night seminar series, the inaugural **ASL 2012 Tasmanian ASL Forum** will be held on Wednesday 18 July 2012 at the Derwent Sailing Squadron rooms, 23 Marieville Esp, Sandy Bay, Hobart. This mini-conference will showcase limnological work in Tasmania by allowing limnologists and water managers to: 1) present their work to others, 2) learn about what is going on in Tasmania, and 3) catch-up with colleagues during the course of a day in a relaxed atmosphere. The forum aims to attract attendees from a broad range of organisations, including undergraduate and postgraduate students.

Inter-state delegates are very welcome!

Registration is free for undergraduate students!

Important dates:

Abstract submission closing date: **2 July 2012**

Registration closing date: **11 July 2012**
(registering after this date can only be done via a Late registration)

Forum: **18 July 2012**

More info:

Scott Hardie
(Scott.Hardie@dpipwe.tas.gov.au)
Regina Magierowski
(reginam@utas.edu.au)

Centre for Water Research

Online Software Training Courses

The Centre for Water Research (CWR) based at The University of Western Australia offers a range of process-based numerical models for simulation of the physical, chemical and biological dynamics within aquatic systems. Our software is used in over 90 countries by researchers, academics, utilities, regulatory agencies and environmental consultants. Software developed at CWR undergoes continuous development by our expert staff and through our international network of research partners to ensure that the most recent scientific and computational methods are incorporated. CWR models are designed to run on standard desktop computers at speeds of around 200 times real time for domains with the order of one million grid points.

CWR is offering two online courses of approximately three days each, designed to give students, researchers and industry professionals hands-on experience in using ELCOM (3D hydrodynamic model) and ELCOM-CAEDYM (aquatic ecology and water quality model). These models can be used for simulating estuaries, lakes, reservoirs and the coastal ocean, for eutrophication, pollution and climate change studies.

Courses will taught by **Dr Jason Antenucci** and will commence on October 4th and run on a continuous basis.

For further information please email: training@cwr.uwa.edu.au or go to: Click here for more details

Institute for Applied Ecology

AUSRIVAS course now enrolling: Module 1 to start in July

The AUSRIVAS Online training course is offered twice a year by the eWater CRC and the University of Canberra. The course aims to teach the skills and knowledge needed to assess river health to an acceptable standard using the Australian River Assessment System (AUSRIVAS) methods. Those who complete its requirements successfully are eligible for accreditation from the relevant state or territory agency.

There are no prerequisites for this non-award course, other than registration and payment. The theoretical knowledge required to use AUSRIVAS for river health assessment can be learnt entirely online in four interactive modules that can be completed at you own pace over 12 weeks. A 4-day practical face-to-face workshop is offered as a fifth module, teaching the practical skills required. The workshop module is held in Canberra but **would you like us to hold a workshop in your state?** If there is sufficient demand from a group or agency we can arrange a workshop in any State or Territory.

The first module of the next AUSRIVAS Online course is scheduled in late July and is enrolling now! If you would like to enrol in the course or any individual module please contact Sue Nichols- susan.nichols@canberra.edu.au or Evan Harrison- evan.harrison@canberra.edu.au for more information or queries regarding a workshop outside the ACT.

http://ausrivas.ewater.com.au/index.php/training-and-accreditation3/introduction

FOR SALE

5 x Phytoplankton Nets 44um

3 x Zooplankton Nets 150um

$230 each or 2 for $450 including GST and postage

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Western Australia

All correspondences by email to **smiodusz@iinet.net.au**

Once cheques are cleared, orders will be dispatched within 5 working days.

Keep up to date on environmental water news

Water for the Environment News is available twice yearly from the Office of Environment and Heritage, NSW's environmental water manager. Each edition features stories on environmental water events and actions across New South Wales.

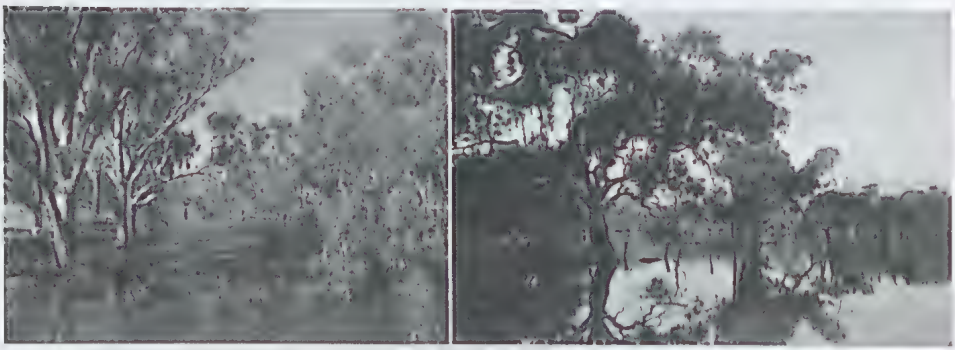
Read about:

- How wetlands and rivers are benefiting from environmental water
- Scientific studies and modelling on environmental water
- Partnerships between government, the community and other agencies
- Flora and fauna responses to flooding events
- Planned watering events
- Water policy
- Water purchased and recovered through NSW programs

The latest edition of the news is available online at:

www.environment.nsw.gov.au/environmentalwater/newsletters.htm

To subscribe to the newsletter, send 'Subscribe' to water.news@environment.nsw.gov.au



LEFT: Cochran Creek in May 2011 during a trial watering event. Photo: Emma Wilson/OEH

RIGHT: Dry Lake in June 2011 after 150GL of environmental water was released into the Murrumbidgee and Murray River systems. Photo: James Maguire/OEH

UPCOMING CONFERENCES

ASL Australian Society for Limnology

51st Congress
Armidale, NSW
26th - 29th November, 2012

The 51st Congress of the Australian Society for Limnology will be held from November 26th to 29th, 2012. The location is set amongst the rolling hills of the New England region in NSW, so beautiful in spring. The venue is the **University of New England in Armidale.**

The theme of the conference will be "***Life at the edge: Boundaries, ecotones and links in freshwater ecosystems***"

This theme was chosen as a rather tenuous link to the location of Armidale atop the great escarpment on the boundary between the Murray-Darling catchment and the eastward flowing coastal rivers, and also in reference to the critical role of our local independent member of the hung parliament.

Scientifically, boundaries are increasingly being shown to be important areas of productivity, diversity and process in river ecosystems.

The conference will be run over four days starting with the student workshops on Monday November 26th. These workshops will include a session on how to write a journal article and a media skills workshop. Day 2 will open with a plenary session followed by contributed presentations. The program for day 3 will feature the presentations by the ASL and Early Career Researcher Medalists as well as a first for ASL congresses – two 'power sessions' of 10 minute speed talks. These sessions are aimed at providing the opportunity for speakers to present the equivalent of rapid communications to a large audience – twice the people in half the time.

Mid conference excursion will showcase some of the local wetlands, rivers, wineries, waterfalls and, did I mention wineries?

The final day will begin with a morning of contributed sessions and the congress will close, as was the case last year, with an afternoon of themed plenary sessions, followed, of course by the congress dinner. The venue for the congress dinner is yet to be finalised, but we hope to have it at a local winery...

There will be plenty of budget accommodation available at the UNE colleges.

The call for abstracts and registration will open on May 1st and close on August 17th.

Watch for updates on the ASL website (www.asl.org.au) and on the ASL facebook site here. Enquiries can be directed to ASN Events (jm@asnevents.net.au) or the local organising committee

We look forward to welcoming you to Armidale in November

Michael Reid (mreid24@une.edu.au) on behalf of the local organising committee

NEW ZEALAND FRESHWATER SCIENCES SOCIETY 2012 CONFERENCE

The 2012 Annual Conference of the New Zealand Freshwater Sciences Society will be held at the University of Otago in Dunedin from 3-7 December. The conference theme, _Beyond the Limits', aims to provoke debate and discussion about the capacity of freshwater ecosystems in New Zealand and elsewhere to cope with current and future intensification of land use. Please see the conference webpage for details and contacts.

http://nzfssconference.co.nz/

International Symposium on Aquatic Oligochaeta
Fremantle, Western Australia
10 -14 September 2012

The 12th International Symposium on Aquatic Oligochaeta will be held in Fremantle, Western Australia, in September 2012.

These symposia are held every three years and encompass all aspects of research into the biology, ecology, biodiversity and systematics of marine, estuarine and freshwater oligochaetes and some related worms.

There are over 300 species of marine and freshwater oligochaetes known from Australian marine and inland waters, though many remain undescribed and there are undoubtedly many that are undiscovered.

Poster or oral presentations from Australian aquatic researchers dealing with oligochaetes, even if they constitute only a small aspect of your research will be very welcome. Otherwise, this will be a great opportunity to learn more about these ecologically important components of aquatic communities.

In addition, a workshop on identifying Australian aquatic oligochaetes will be held on Friday 7th September, just before the symposium, with sessions run by leading taxonomists See separate notice)

More information and registration forms are available at www.isaob12.net.au or email adrian.pinder@dec.wa.gov.au.

Australian Marine and Freshwater Oligochaete Identification Workshop

Friday 7th September 2012, Fremantle, Western Australia

A workshop on identifying Australian marine and freshwater oligochaetes will be held in Fremantle, Western Australia on Friday 7th September 2012. This workshop is timed to coincide with 12th International Symposium on Aquatic Oligochaeta (www.isaob12.net.au), which will be held over the following week.

Venue: The Esplanade Hotel, Fremantle, Western Australia.
Program: The workshop will include presentations on the diversity, anatomy, methods and identification of Australian worms by some of the world's leading oligochaete taxonomists, followed by a practical microscope session.

Presenters:
Dr Kathryn Coates (Bermuda Department of Conservation Services, Bermuda)
Prof. Christer Erséus (Dept of Zoology, University of Gothenburg, Sweden)
Mark Wetzel (Illinois Natural History Survey, Prairie Research Institute, University of Illinois, USA)
Adrian Pinder (Dept of Environment and Conservation, Western Australia)

Cost: $170 per person. This fee includes workshop materials and morning & afternoon teas.

Registration: To register please complete the registration form for the oligochaete symposium, indicating that you wish to attend the workshop. The form will be available from December 2012 at www.isaob12.net.au.

Payment: By credit card (Visa or Mastercard) or bank transfer - see registration form for details.

More information:
Contact Adrian Pinder
Telephone: +61 (0)8 9405 5153
E-mail: adrian.pinder@dec.wa.gov.au

Further details will be provided closer to the workshop.

ECOLOGICAL SOCIETY OF AUSTRALIA - 2012 Annual Conference
Ecology: Fundamental Science of the Biosphere
3-7 December 2012 – The Sebel, Albert Park

ASL members are warmly invited to attend the 2012 Annual Conference of the Ecological Society of Australia, which will be held at The Sebel, Albert Park in Melbourne, from 3-7 December. ESA2012 will bring together ecologists from academic, government and non-government backgrounds and will provide a valuable forum for researchers, land managers and policy makers to share advances in ecology and their implications for understanding our biosphere.

The conference theme —Ecology: Fundamental Science of the Biosphere" will —get back to basics" and focus on the scientific inquiry that underpins the discipline and the solution of environmental problems. Keynote speakers span a variety of ecosystems, including freshwater and marine, and the conference will be organised around concepts and processes rather than around habitats, ecosystems or organisms. The society is particularly keen to boost the numbers of presentations by aquatic researchers.

Visit www.esa2012.org.au for further details regarding the conference program, keynote speakers, and registration information, and we hope to see many of you there. Barbara Downes on behalf of the Local Organising Committee for ESA2012.

STUDENT ANNOUNCEMENTS

$10 000 pa
Doctoral Scholarship Top-Up

Study with the Institute for Applied Ecology and you could be one of the best paid PhD students in Australia!

IAE Scholarship

The Institute for Applied Ecology (IAE) Doctoral Scholarship Top-Up is competitively awarded as a 'top-up' of up to $10 000 per annum for IAE PhD candidates who hold a stipend from any other source. This stipend could be from a University of Canberra scholarship, an employment scholarship or an international scholarship.

1st Class Honours Students – Pay special Attention!

If you received a 1st Class Honours award or equivalent from an Australian University, you may be eligible to receive an Australian Postgraduate Award scholarship from the University of Canberra (UC APA scholarship), worth $22 700pa, tax free. With this UC APA, and a relevant honours degree, you will be eligible to apply for the IAE Top-Up to receive up to $32 700 pa while you undertake your doctoral studies in Applied Ecology[1].

Other eligibility requirements

To be awarded the IAE scholarship top-up, all applicants need to be enrolled at the University of Canberra as a full-time doctoral student and have a project and a supervisor at the IAE[2].

About the IAE

The IAE is a research and teaching institute that produce work of international standing. IAE researchers hold distinctive strengths in basic and applied science, including in the following areas:

- Catchment systems
- Conservation biology
- Ecological health assessment
- Environmental chemistry
- Freshwater ecology
- Natural resource policy and planning
- Population modelling
- Sex determination and evolutionary biology
- Vegetation and wildlife management
- Wildlife genetics

[1] For more information on the UC APA, see: http://www.canberra.edu.au/research-students/scholarships/domestic-scholarships2

[2] For information about potential PhD projects, see: http://www.canberra.edu.au/centres/iae/potential-phd-projects.php

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University of Canberra, ACT, 2601, Australia
Phone: +61 (2) 6201 2795 Website: www.appliedecology.edu.au
Email: IAEAdmin@canberra.edu.au

UNIVERSITY OF CANBERRA

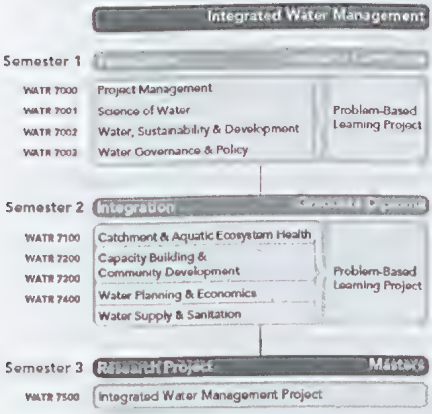
INTERNATIONAL WATERCENTRE

Master of Integrated Water Management

Graduate Certificate and Graduate Diploma
Full-time and part-time/distance

In the complex world of climate change and population growth, water professionals can no longer focus on a single aspect of water management. Solving water-related problems requires technical and scientific expertise and greater understanding and integration of environmental, social and political factors.

Program structure (Full-time)


Integrated Water Management
Semester 1
WATR 7000 Project Management
WATR 7001 Science of Water
WATR 7002 Water, Sustainability & Development
WATR 7003 Water Governance & Policy
Problem-Based Learning Project
Semester 2
Integration
WATR 7100 Catchment & Aquatic Ecosystem Health
WATR 7200 Capacity Building & Community Development
WATR 7300 Water Planning & Economics
WATR 7400 Water Supply & Sanitation
Problem-Based Learning Project
Semester 3
Research Project
Masters
WATR 7500 Integrated Water Management Project

For part-time/distance see www.watercentre.org/education/programs/part-time

Qualification from four leading universities

Students enrol at The University of Queensland (Brisbane). The program is managed by IWC and delivered by lecturers from all IWC member universities. Upon graduation students receive a co-badged qualification.

Three of our member universities are ranked in the top 100 universities of the world in the Times Higher Education World University Rankings.

Great incentives to enrol

- Field trips (Western Australia, Stradbroke Island and others) are included in the tuition fees.
- Masters and Diploma students receive $1,000 toward professional development.
- Masters students also receive up to $1,000 to support their third semester project.

Practical and applied components

The program builds on students' professional experience to approach water-related problems holistically

- **Lecture modules** teach knowledge and skills across a wide range of disciplines.
- **Team projects** allow students to apply their knowledge to real case studies in Australia and overseas.
- **Field visits** throughout Australia complement project work and give students first-hand water system experience and knowledge.
- **Network building** encourages students to establish links through the IWC's network of national and international specialists.
- **Skills development** allows students to gain practical skills to analyse and solve water-related problems.

Our graduates will acquire

- **Communication skills** across disciplines and sectors, and sciences and policy
- **Systems thinking skills** for the whole-of-water cycle
- **Collaboration skills** for cross-sectoral teamwork
- **Problem-solving skills** for complex issues requiring difficult tradeoffs
- **Risk assessment and planning skills** to devise sustainable solutions
- **Adaptive and reflexive learning skills**, i.e. an ability to learn by doing and applying context-specific solutions

Paul Greenfield, AO
Vice Chancellor
The University of Queensland

There are no courses in Australia, and very few internationally, that take such an integrated approach to teaching and learning about water management.

www.watercentre.org

MINUTES FROM ASL EXECUTIVE TELECONFERENCE

Australian Society for Limnology Teleconference 4 June 2012

Present: L. Frampton, D. Ryder, D. Baldwin, R. Thompson, E. Harrison, K. Aldridge, S. Capon, E. Turak, S. Hardie, B. Robson, R. Lester, T. Mackintosh (plus ASN: J. Moir, S. Monk)

Apologies: E. Garcia, J. O'Connor, B. Downes

1. Congress update (from ASN and D. Ryder):

ASN have booked accommodation and lecture rooms at UNE. Registration and abstract submission is now open on the revised ASL website. Here congress themes can be seen as well as an invitation to those interested in organising a symposium. Costs will be based on an expected registration of 180-200 participants. Sponsorship has been difficult and so far only about half the amount gained last year has been raised. Fortunately UNE has provided the lecture rooms for free. Field trips are still being planned. The cost of the conference dinner has also been reduced by sponsorship. Two workshops are planned for students before the student mixer later on the first day.

2. Revised ASL website:

This has been revised by D. Ryder with help from Jacqui Moir and others from ASN. D. Ryder thanked ASN for their help in this process and asked the executive to scrutinise the new site for errors and to send suggestions for improvements to him and J. Moir.

3. ASL funded events:

State based activities between congresses, e.g. pub nights, have been encouraged and a policy is now needed on how much the ASL spends on such events without compromising its ability to fund annual congresses. D. Ryder suggested that $500 be allocated each year to each state to sponsor such activities. Such funds could be used for room or venue hire and could also extend to providing some catering. Organisers will need to judge the best use of funds and they may be able to apply for extra funding. The executive agreed to this proposal and suggested each state send a written request before funding would be made available. It was also suggested that two states could collaborate in running one of these events, thus doubling the amount of funds available or request a carry-over of an annual allocation. Requests to sponsor additional ASL member or external events (e.g. non-ASL conferences) will be considered by the executive using the existing policy (decided in Nov 2011). The financial status of the society will be examined by the treasurer before decisions are made on such requests.

4. ASL membership categories:

A recent query about membership from someone who has been a member for 40 years indicated that ASL membership categories probably need some revision. Currently (in addition to ordinary and student membership) the society has honorary life membership for those who have given long service and emeritus membership for

those who are retired but wish to continue their association with the society. In the past life membership could be obtained by paying a fixed amount, but such payments have now been abolished. The ASL also has honorary membership but this is a category that seems never to have been used (and will probably be abolished in the revised version of the constitution). Some discussion took place about whether an additional category was needed for members of long standing. In the end the executive decided to offer emeritus membership to anyone with 40 years or more membership, if they wished it; the decision would be entirely their own.

5. Newsletter update:

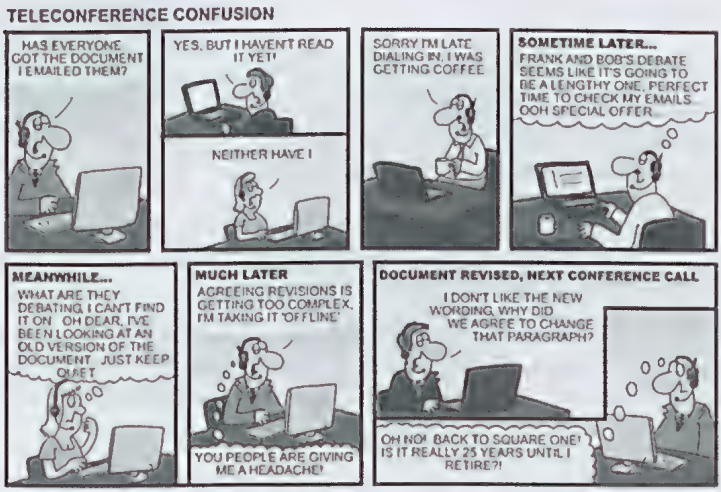
R. Thompson reported that the current newsletter was being assembled and that the new deputy editors were contributing material. Reminders to those who provide reports from the trenches had been sent. Comments on some recent articles such as -So you think you...." will be published.

6. Other business:

(i) R. Thompson reported that there was overwhelming support (from the survey conducted in the newsletter) for sending a letter to the Federal Government about funding for freshwater research. He suggested that the letter, which has been drafted (and approved by most who responded to the survey), should be sent to FASTS for feedback. This was agreed.

(ii) R. Lester noted that one of the term deposits was due to be rolled over and asked whether it would be more appropriate to do so for 12 months rather than 6 months. It was agreed to roll this over for a year.

(iii) D. Ryder has received comments from members about the impending revision to the constitution. He will send these to D. Baldwin for consideration.


TELECONFERENCE CONFUSION
HAS EVERYONE GOT THE DOCUMENT I EMAILED THEM?
YES, BUT I HAVEN'T READ IT YET!
NEITHER HAVE I
SORRY I'M LATE DIALING IN, I WAS GETTING COFFEE
SOMETIME LATER...
FRANK AND BOB'S DEBATE SEEMS LIKE IT'S GOING TO BE A LENGTHY ONE, PERFECT TIME TO CHECK MY EMAILS. OOH SPECIAL OFFER
MEANWHILE...
WHAT ARE THEY DEBATING, I CAN'T FIND IT ON OH DEAR, I'VE BEEN LOOKING AT AN OLD VERSION OF THE DOCUMENT JUST KEEP QUIET
MUCH LATER
AGREEING REVISIONS IS GETTING TOO COMPLEX, I'M TAKING IT 'OFFLINE'
YOU PEOPLE ARE GIVING ME A HEADACHE!
DOCUMENT REVISED, NEXT CONFERENCE CALL
I DON'T LIKE THE NEW WORDING, WHY DID WE AGREE TO CHANGE THAT PARAGRAPH?
OH NO! BACK TO SQUARE ONE! IS IT REALLY 25 YEARS UNTIL I RETIRE?!

FROM THE ARCHIVES....

... Fran Sheldon*

** that sounds bad doesn't it Fran? Sorry about that, I won't do it again. But the resulting title was sufficiently funny that for this edition only, Fran Sheldon will be 'From the archives....' (Ed.)*

An introduction from Cath Leigh:

The ASL Newsletter has a new section...

From the archives!

Recollections and ruminations from long-standing ASL members: snips, slips, quips and tips

The first ASL conference I attended was Hobart, 2005, so although it's quite a stretch to call myself a long-standing ASL member, seven years of membership and conference attendance has already provided a trove of amusing anecdotes. A lasting memory from the 2005 conference, for example, is the description in one presentation of a fish species that had a rather racy appellation. But rather than delving too deeply into my recollections, we are very pleased to have Fran Sheldon on hand to regale us.

Dr Fran Sheldon, Australian Rivers Institute, Griffith University

Year first joined ASL: 1986

First and most recent ASL conference you attended:

My first ASL was in 1986, this was the 25th conference of ASL. It was held in Warrnambool, Victoria, I was in my Honours year at the University of Adelaide. Lance Lloyd, Bryan Pearce, Keith Walker and a band of 4 Honours students hired a mini bus and drove across from Adelaide. We all stayed in the caravan park and if I remember correctly the conference was held over the weekend in a local hall with no parallel sessions.

My most recent conference was the ASL 50th, held last year in Brisbane, where I was Chair of the Organising Committee. The conference was held over a week in the Brisbane Convention Centre, with 4 parallel sessions - and I doubt anyone stayed in a caravan park...

Snips (what floats your boat/ fires you up limnologically)?

My current research is very applied, with a focus on river and stream ecosystem health and the thinking around indicators for measuring different aspects of river

ecosystem health that may respond to impacts such as land use change, flow change or climate change. However, Keith Walker (University of Adelaide) must have installed his fascination for mussels somewhere in my mind as last week while on a field trip with 10 Engineers from the Yellow River in China I stumbled across quite a good mussel bed below Wivenhoe, my mind was wandering...what sort of projects we could start here....

Slips (serendipitous moments or valuable lessons gained from unintentional bloopers/ accidents encountered over the course of your membership):

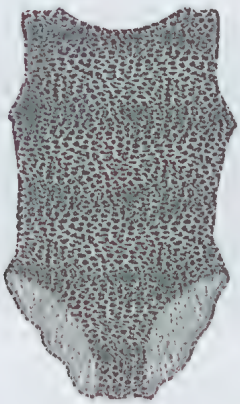
The memories of crazy things at ASL is large, from Leon Barmuta giving his talk in a leopard-skin leotard, driving around Canberra in circles with Lance Lloyd, Barb Downes and others trying to find a supermarket, to Sam Wade snoring in the dormitories on Rottnest Island and everyone sleeping with pillows on their head. The memory, however, that stands out and is testimony to the pleasures of using Powerpoint was Prof Jorg Imberger about to present his ASL Medal Address (the Hillary Jolly Lecture) at the Marcoola Conference, he pressed the button on the old slide projector which instantly jammed and spat all his well-organised slides for the 45 minute presentation all over the floor. Coffee anyone??

Quips (earliest ASL-related memory that amuses and/or inspires you, or that you just can't shake):

See above!

Tips (advice you have, of any sort, for newer ASL members):

Always attend the Keynote addresses and ASL Medal presentations – and generally get involved.



END OF A CRC ERA!!

A dinner on 29 May, for the many people associated with the CRCs for Catchment Hydrology, Freshwater Ecology and their 'offspring' eWater, celebrated 20 years of achievement (1992–2012). In total, 32 years of CRC work (13 for CRCCH, 12 for CRCFE, 7 for eWater) come to an end on 30 June this year.

Around 180 people attended the dinner, and the late Peter Cullen and Richard Norris and Christy Fellows were probably there too, in spirit! They were certainly acknowledged both by the speakers and by the guests.

Since the start of these CRCs, there has been huge progress in adding to understanding and prediction of water use, water quality and environment. Both the CRC for Freshwater Ecology, set up and led by Peter Cullen AO until 2002, and the CRC for Catchment Hydrology, which began a year earlier, extended understanding across eastern Australia, with the aim of improving the condition and flow of inland surface waters and groundwaters.

Both Professor John Langford AM and Dr Don Blackmore AM spoke at the celebration. John Langford chaired the boards of both the early CRCs for two rounds each (1992– ; 1993–), stepping down when they joined forces in 2005. Don Blackmore was influential in both early CRCs as well, in his role then as Chief Executive of the Murray-Darling Basin Commission, and he has chaired eWater since 2005. They recalled important, as well as funny, incidents and occasions from the past. Similar anecdotes came from others of the guests at the dinner, as Professor Gary Jones, the host, walked around with a microphone. Illuminating reminiscences at the end of an era!

There are some photos at the eWater website:
http://www.ewater.com.au/news/events/?event=203

(This news item is adapted, with permission, from the item in *BRIDGING*, newsletter of the Peter Cullen Water & Environment Trust, winter issue; www.petercullentrust.com.au/news)

HIGH PROFILE LIMNOLOGY

This section will highlight high profile papers from limnology that have appeared over the last quarter and which have an ASL connection. Please feel free to nominate papers, books or reports for this section. Inclusion will be at the Editor's discretion. ED.

Sally Hladyz is a post-doctoral research fellow with Ross Thompson, Mike Grace and Jenny Davis at the Australian Centre for Biodiversity at Monash University. She is currently working on the CSIRO Flagship for Environmental Flows project. Sally moved to Monash from the Murray Darling Fisheries Research Centre at Albury, where she was working as a post-doctoral fellow with Darren Baldwin. This followed her PhD work in Ireland with Guy Woodward. The paper below, recently published in *Science*, arose from her time in Ireland, working on a cross-European study of biodiversity and ecosystem function relationships in streams.

Continental-Scale Effects of Nutrient Pollution on Stream Ecosystem Functioning

Guy Woodward,[1,2*†] Mark O. Gessner,[3,4,5,6*†] Paul S. Giller,[1] Vladislav Gulis,[7†] Sally Hladyz,[1§] Antoine Lecerf,[8,9] Björn Malmqvist,[10] Brendan G. Mckie,[10¶] Scott D. Tiegs,[3,4,11] Helen Cariss,[12¶] Mike Dobson,[12#] Arturo Elosegi,[13] Verónica Ferreira,[7] Manuel A.S. Graça,[7] Tadeusz Fleituch,[14] Jean O. Lacoursière,[15] Marius Nistorescu,[16] Jesús Pozo,[13] Geta Risnoveanu,[16] Markus Schindler,[3,4] Angheluta Vadineanu,[16] Lena B.-M. Vought,[15] Eric Chauvet[8,9†]

Excessive nutrient loading is a major threat to aquatic ecosystems worldwide that leads to profound changes in aquatic biodiversity and biogeochemical processes. Systematic quantitative assessment of functional ecosystem measures for river networks is, however, lacking, especially at continental scales. Here, we narrow this gap by means of a pan-European field experiment on a fundamental ecosystem process—leaf-litter breakdown—in 100 streams across a greater than 1000-fold nutrient gradient. Dramatically slowed breakdown at both extremes of the gradient indicated strong nutrient limitation in unaffected systems, potential for strong stimulation in moderately altered systems, and inhibition in highly polluted streams. This large-scale response pattern emphasizes the need to complement established structural approaches (such as water chemistry, hydrogeomorphology, and biological diversity metrics) with functional measures (such as litter-breakdown rate, whole-system metabolism, and nutrient spiraling) for assessing ecosystem health.

Nutrient enrichment from organic inputs and agricultural run-off is placing the world's vulnerable fresh waters in a precarious position (*1–4*). Far-reaching environmental legislation has been introduced to redress human impacts on aquatic communities (*5*, *6*), yet the consequences of nutrient loading for stream ecosystem functioning remain poorly understood (*4*, *7*, *8*). This is worrying because key ecosystem services (such as maintenance of viable fisheries as a provisioning service, and organic matter decomposition as a supporting service) ultimately depend on ecosystem processes, such as leaf-litter breakdown and other processes involved in nutrient cycling (*3*, *9*).

Many aquatic ecosystems are supported by plant litter inputs (*10–12*). This includes streams, where terrestrial leaf breakdown—which is driven by resource quality, the abundance, diversity, and activity of consumers; and environmental factors—is a key ecosystem process (*10*, *13*, *14*). Moderate nutrient enrichment of streams can accelerate breakdown by stimulating microbial conditioning and invertebrate consumption (*15*, *16*). However, a wide range of responses along nutrient gradients has been reported in field studies, suggesting environmental drivers beyond elevated nutrient supply. For instance, wastewater discharge can induce anoxia, mobilize heavy metals, and physically smother benthic organisms (*17*, *18*). Litter breakdown by invertebrates (*19*) appears especially sensitive to nutrient pollution relative to that mediated by microbes (*20*) and, because invertebrates often attain their highest densities in moderately enriched streams, a hump-shaped breakdown rate response might be expected along long nutrient gradients (*5*).

We hypothesized that breakdown rates are constrained by microbial nutrient limitation at the low end of nutrient pollution gradients and by the effects of environmental degradation on invertebrates at the high end. Most studies, however, have been unable to detect this pattern because they have been conducted over relatively short nutrient gradients and small spatial scales (*5*, *7*). Here, we report a field experiment in 100 European streams spanning 1000-fold differences in nutrient concentrations, as proxy measures of nutrient loading by direct and indirect inputs (*21*). The validity of this approach is highlighted by the positive relationship between biochemical oxygen demand (BOD_5) and nutrient concentrations in more than 8000 European streams, and the comparable frequency distributions of nutrient concentrations between these and our sites (fig.

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REPORTS FROM THE TRENCHES

eWater CRC

Wind up of the CRC

The research and industry partnership we know today as the eWater Cooperative Research Centre opened its doors in 1992, under the banner of the CRC for Catchment Hydrology. The CRC for Freshwater Ecology set up operations a year later. Thirteen years on, in 2005, we merged those two CRCs to form a single, integrated water science and management CRC – eWater.

It was the research and industry teams from the two former CRCs that came together in eWater to blend the best hydrological and ecological knowledge that had arisen inside and outside the CRC's, and to integrate this into a new national eco-hydrological modelling system - a system that would support implementation of the National Water Initiative and be built not only on the strongest scientific and engineering foundations but on the highest professional software quality and useability standards.

Finally, it was our task to support the adoption of this new national eco-hydrological modelling platform by our industry partners and to ensure it is maintained and supported for the next twenty years or more – certainly well beyond the life of the CRC.

Now, 20 years after our foundation and three rounds of CRC Program and partner funding later, we have entered the final phase of our CRC life, preparing for the future as an independent self-sustaining organisation. I hope that all readers will enjoy the reflections on the CRC's history and on the people—some great, all good—who contributed to our success.

Names like **Cullen, Mien, Hart, O'Loughlin, Lake, McMahon, Bunn, Vertessy, Hillman, Arthington, Lawrence, Grayson** and **Gawne**, to name only a handful of key contributors. All major figures in the Australian water science community, with none more so than the late **Peter Cullen**, founding CEO of the CRC for Freshwater Ecology and without doubt the country's most influential water scientist over the past 25 years.

There are many important achievements of the CRCCH-CRCFE-eWater pedigree that extend across important new research findings, new hydrological and ecological models, influential reports to government and industry, and influence by our work and by our people on government policy and management, not least of which in the area of environmental water management.

On the people side of our organisation, we brought together researchers, industry technical specialists and government water managers to work in collaborative multi-organisation, multidisciplinary teams focusing on real world water science and management problems. These were people and groups that had not consistently worked together prior to the CRCs starting. It is these networks, relationships and friendships that have been built over the past 20 years that will provide an enduring foundation for eWater's future success.

We have also helped train a new generation of postgraduate students who are knowledgeable of real world water management and well prepared for professional employment within that industry.

As eWater readies itself to evolve into a not-for-profit, independent, member-based water modelling organisation, we are eager to celebrate this achievement and to acknowledge the manifold contributions of our numerous partners and their staff and students.

190 current and former staff and supporters of the three CRC's met for a gala dinner held in Canberra on May 29, at the National Gallery. It was a great night and much reminiscing and catching-up was enjoyed by all on the night.

eWater's future – life beyond the CRC

The current CRC contract between the Commonwealth, the CRC partners and eWater Ltd will complete in June 2012. However, with support from of our core government water industry partners, eWater will establish itself as a commercially viable, not-for-profit organisation into the future.

Our first major job will be to support the implementation and use of Source as the new national hydrological modelling platform in Australia. To that end, starting in mid-2012, our COAG partners will contract eWater to provide these 'adoption' services in support of COAG's National Hydrological Modelling Strategy. This will include the provision of long term maintenance and improvements to Source on the same fully professional and quality assured basis as has occurred under the aegis of the eWater CRC.

From July 2012, we will be opening access to Source to any water, research or educational organisation through membership of the new Source Modelling Community. Members will have unlimited access to Source licences for their staff and students, as well as the opportunity to collaborate with the global online Source 'community of practice' and to participate in open-source Source software development.

Over time eWater will also build strategic relationships with international river and water management organisations to facilitate the use of Source and Toolkit models around the world, especially in developing and emerging countries.

eWater Limited is already an incorporated business and can continue on that basis with only minor changes to its constitution. We will remain a member-based company, with COAG jurisdictions as core members. Other organisations will be able to collaborate as members of the new Source Modelling Community. It is our absolute ambition to retain the positive research-industry collaborative approach of the CRC into the future.

Critically, as a mission-driven not-for-profit, public organisation, we will retain our fundamental commitment to ecologically sustainable water management in Australia and around the world, and also ensure that we remain a highly attractive place to work for innovative scientific and engineering minds.

Gary Jones
Chief Executive

THOMPSON LAB

SCHOOL OF BIOLOGICAL SCIENCES, MONASH UNIVERSITY

It is with the greatest pleasure that I congratulate **Sam Imberger** (co-supervised with **Mike Grace**) and **Susie Ho** (co-supervised with **Nick Bond**) on graduation with their PhDs. Susie and Sam are my first students, so it is with particular pride that I register their accomplishment. Sam has moved on to a post-doctoral position with Chris Walsh at the University of Melbourne. Susie has recently moved into a teaching role at Monash.

Adrian Dusting is progressing well on his PhD project on invasion and adaptation in New Zealand mudsnails; (co-supervised by Paul Sunnucks), using a molecular approach. Note his request for specimens earlier in this edition – please respond if you have some!! **Clarissa Barbosa** has completed her major experiment on spatial food web ecology, which involved filling a farm in central Victoria with inflatable paddling pools for a few months. She has also joined Paul Sunnucks (molecular ecologist), Bob Wong (fish behavioural ecologist), **Jenny Davis** and Ross on their major new Discovery project based in central Australia. Jenny, Ross and Paul are continuing their work on the NCCARF funded work in the same region, working with **Jayne Brim-box** and **Glenis McBurnie** of the NT government. Glenis has recently decided to step back into the university scene for a while, and will shortly commence her Honours with Ross and Jenny. **Teresa MacIntosh** (biodiversity of urban wetlands; co-supervised by **Jenny Davis**) has finished her first full field season and is learning the joys of picking wetland bug samples. **Darren Gilling** (carbon dynamics in streams subject to revegetation; co-supervised by Ralph Mac Nally) is at the other end of the process... moving into the data analysis phase within our ARC Linkage on the potential impacts of carbon farming. Honours student **Phil de Zylva** has just graduated with Honours for his work on anti-predator responses in freshwater crayfish, while **James Griffiths** is nervously awaiting the outcome of his dissertation on terrestrial biodiversity responses to revegetation.

Ross, **Mike Grace**, John Beardall (algal physiology) and Jason Beringer (climate modelling) are in the final phases of their *NCCARF* funded project looking at climate effects on ecosystem processes, working with **Paula Sardinia** as a post-doctoral fellow. Ross has just commenced his *ARC Future Fellowship* for four years – largely based around a project exploring food web assembly and its interactions with anthropogenic change.

Sally Hladyz has recently celebrated a paper in Science (see this issue of the Newsletter) and is continuing to lead Monash's involvement, with **Jenny Davis** and **Mike Grace,** in the CSIRO Environmental Flows flagships. The major experimental project in the Edwards-Wakool system, in collaboration with **Robyn Watts** and **Keller Kopf** at Charles Sturt University, has just been completed and it is writing and analysis time. And on a final note, the Cooperative Research Centre for Water Sensitive Cities based at Monash, and including myself, **Jenny Davis** and **Mike Grace** will commence in July, with a range of new projects across Australia and across the globe.

Ross Thompson *(writing in the third person, for some reason)*

Tasmanian report

The year is well under way now, so we are getting Tas ASL activities for 2012 pencilled into people's diaries/digital doohickies. As mentioned late last year, this year we Tas folk plan to hold the usual pub nights and also a 1-day forum. Below are some brief details about these events, including important dates.

Tas ASL pub nights

The 2012 pub series will be held at the same venue which has been used in recent years, the Duke of Wellington Hotel, 192 Macquarie St (cnr Barrack St), Hobart. The pub nights will be on the first Monday of the month, and the dates for the pub nights will be: **August 6** and **September 3.** Note there will be no pub night in July; instead the forum will occur early in the month (see below).

Scott Hardie

DEPARTMENT OF SCIENCE, INFORMATION TECHNOLOGY, INNOVATION AND THE ARTS (DSITIA)

Queensland Government

Water Planning Ecology Group

Well some big changes have happened in our neck of the woods with the group being placed into a separate Department as a result of the changes being implemented by the new Queensland Parliament. So we have now been moved from the Department of Environment and Resource Management (DERM) into one focused on science and which includes the Queensland Museum. Our work hasn't really changed, but the background administration might make things a bit different.

Regardless the group has been producing some fantastic work resulting from a bit of fieldwork and lab work and plenty of data processing and report writing. **Jon Marshall**, **Glenn McGregor** and **Bill Senior** have recently completed some more sediment coring work on Stradbroke Island and Fraser Island with **John Tibby** and **Cameron Barr** from Adelaide University (an ARC linkage project). The aim of this work is to investigate a number of questions on the climate signals, sediment deposition rates and the ages of these unique wetlands and possibly review the whereabouts of a mythical Spanish Galleon supposedly shipwrecked on the eastern coast of Stradbroke Island.

Joanna Blessing, **Alisha Steward**, **Jimmy Fawcett** and **Ryan Woods** have been helping out on the current round of fieldwork for the Lake Eyre Basin Rivers Assessment in the Western Rivers of Queensland. Seems it was quite wet, slippery and muddy at times and a few days of quite cold weather. They caught plenty of fish; however the occurrence of sleepy cod in places out of its natural range may indicate a future worry for resource managers in the area. **Raj Prasad** has also undertaken an epic drive to sample aquatic bugs for a

pesticide project with University of Sydney. Sites sampled were anywhere between Brisbane and Cairns and west as far as Emerald. **Cam Schulz** and regional staff have been investigating stygofauna in the eastern Murray Darling catchments of Queensland and **Cam** has also helped out on several Sustainable Rivers Audit trips.

Back in the office **Glenn**, **Bill Senior**, **Dean Holloway** and **Yemaya Smythe-McGuiness** are finalising stage 2 of the Wet Tropics Water Resource Plan Environmental Assessment and are getting their teeth into the aquatic asset selections for the Western Murray Darling catchments of Queensland. **Colton Perna** and **Ruth O'Connor** have finalised the hydroecological study on the Lower Burdekin wetlands funded by the NWC. Unfortunately both Ruth and Colton have left the group to chase other fishing opportunities. **Penny Rogers** has been extremely busy updating and adding to the riverine conceptual information for the Government website (http://www.epa.qld.gov.au/wetlandinfo/site/ScienceAndResearch/ConceptualModels/Riverine.html). **Jason Dunlop** has returned to the group (although he hadn't really officially left) to join **Glenn** and **Sarah Rogers** on work looking at the ecological effects of CSG. **Joanna, Sara Clifford, Alisha Steward** and **Pete Negus** are busy putting together risk assessments of the threats to riverine ecosystems in the Bulloo and Northern Murray Darling catchments.

Ryan Woods, **Jaye Lobegeiger** and **Jimmy Fawcett** have finalised a report to the NWC on Lower Balonne floodplains and waterholes. The project looked at the effects of different food sources contributing aquatic food webs. The project investigated and used several innovative techniques including fatty acids and genetic analyses which were very successful and contributed to some exciting results. However, the work was interrupted by the consistent flooding that has occurred over the last few years and the gap of data from a dry period combined with the conclusions of the project should instigate a lot of further work.

A number of peer reviewed papers have been published by staff - including several in the recently produced Special Publication of the Proceedings of the Royal Society of Queensland - —A Place of Sandhills: Ecology, Hydrogeomorphology and Management of Queensland's Dune Islands", and **Alisha**'s paper in Frontiers in Ecology and the Environment: Steward, A.L., von Schiller, D., Tockner, K., Marshall, J.C. and S.E. Bunn. 2012. When the river runs dry: human and ecological values of dry riverbeds. Hopefully Alisha's PhD thesis will be finalised very soon to top off this great publication.

Aquatic Ecosystem Health Unit

The Ecosystem Health Monitoring Program (EHMP, www.ehmp.org) team have recently completed the program's twentieth bi-annual field assessments at 135 sites across south east Queensland. Long-standing team members **David Moffatt** and **Stephen Moore** both recently moved up the employment food chain a notch, but continue to oversee the work. Team members, **Eleanor Kelly** and **Dan Warner** have been joined by new arrivals **Chris Pietsch** and **Troy Harris**, and all are currently beavering away realising the joys of processing 400+ macroinvertebrate samples.

The team derives an annual report card on the health of south east Queensland rivers and streams based on sixteen ecological indices within five indicators; physio-chemical water quality; nutrient cycling; ecosystem processes; aquatic macroinvertebrates and fish. The program has been running since 2002, and now includes records of 326,427 macroinvertebrate specimens from 179 (predominantly Family-level) taxa and 389,493 fish from 59 species.

Pete Negus

BENNELONGIA ENVIRONMENTAL CONSULTANTS

Stuart Halse and the team at Bennelongia Environmental Consultants mostly work on subterranean fauna (both stygofauna and troglofauna) and short range endemic invertebrates. However, they have recently returned to old stamping ground with some surveys of springs and river pools in the Pilbara, and some aerial surveys of waterbirds between Perth and Bunbury. Stuart is also continuing ostracod taxonomy with **Koen Martens** and **Isa Schön** from the Royal Belgian Institute for Natural Sciences and recently published in the European Journal of Taxonomy the first paper of a series describing (very appropriately) new species of Bennelongia.

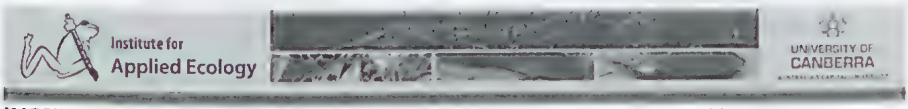
Stuart Halse

CSIRO
CATCHMENT AND AQUATIC MODELLING GROUP

Brad Sherman and **Phil Ford** (CSIRO) are helping to organise and will be participating in an international workshop, held at Three Gorges Dam in China 18-25 June 2012, to compare methods used to measure GHG fluxes from reservoirs to the atmosphere. Teams from Switzerland, Brazil, Australia, Canada, Norway and China will be participating. All teams are bring their equipment and will be measuring concurrently at the same location. The different teams use slightly different equipment configurations that may introduce persistent biases in the results. Methods include: acoustic bubble flux quantification; floating chambers with gas recirculation through gas analysers; floating chambers using discrete samples and GC measurements; and diffusion chambers using discrete samples and GC measurements.

This workshop will allow direct quantification of any biases associated with the methodologies to facilitate comparison of flux measurements reported by the different teams.

Brad Sherman



INSTITUTE FOR APPLIED ECOLOGY FRESHWATER ECOLOGY LABORATORY
UNIVERSITY OF CANBERRA

The Institute for Applied Ecology Freshwater Ecology Laboratory has been quite busy lately with lots of field work. **Evan Harrison, Chris Levings, Anthea Florence** and **Danny Wright** have been involved in field work for various projects including- biological assessment of the Thredbo River (downstream and upstream of Thredbo Villiage), Lower Cotter River Catchment turbidity monitoring and the biological response to flows downstream of Corin, Bendora, Cotter and Googong Dams.

Evan Harrison, Chris Levings and Anthea Florence have been involved in completing lab and field work for a project determining the effect of the Tanatangara Dam environmental flow release (1500ML/D) on the physical and biological condition of the Upper Murrumbidgee River (see photos below before and during the release). The results of the project will be extremely interesting given that there has never been an environmental flow release of this magnitude from Tantangara Dam. Funding for the project came from a University of Canberra Early Career Research Grant awarded to **Evan Harrison**.

Mark Lintermans, Ben Broadhurst and Rhian Clear have continued their baseline assessment for the project 'Research into long-term assessment of the potential impacts on threatened fish from the construction, filling and operation of the Enlarged Cotter Dam'. The 3 year baseline assessment prior to filling of the enlarged dam is almost complete and data collected will be used to develop management thresholds for two threatened fish species (Macquarie perch and two-spined blackfish) once the enlarged Cotter Dam begins to fill. Assessment will then move into its second phase (filling) and third and final phase (post filling and operation). Recent flooding of the Cotter Catchment left a number of Endangered Macquarie perch stranded in the quarry used for construction of the enlarged dam. The fish team conducted a rescue and successfully released ~ 80 Macquarie perch back into the Cotter Reservoir unharmed (see photo below).

Fiona Dyer has been building Bayesian models in an NCCARF funded project to predict the water quality and ecological consequences of a changing climate in the Upper Murrumbidgee Catchment. She has been assisted in this by post-doctoral fellows **Paloma Lucena-Moya, Evan Harrison** and research assistants **Alica Tschierchke and Sally Hatton**. Paloma, Evan and Alica have been compiling our historical macroinvertebrate data set from the Upper Murrumbidgee catchment to look for thresholds of ecological response.

Fiona Dyer and Sue Nichols were successful in securing funding from the University of Canberra Murray Darling Futures Collaborative Research Network (CRN) for three projects. These projects are:

- Using an evidence-based approach in the optimization of water allocation decisions lead by **Sue Nichols** and involving team members from eight Universities, MDBA and ACTEW. This project will analyse ecological water requirements for aquatic communities and use a water allocation model to demonstrate how environmental flows and other outputs for water use may be maximised. Important components of the study are the development of ecological flow responses and the determination of actual and optimal water allocations in the Goulburn Broken and Upper Murrumbidgee catchments.
- An integrated hydro-ecological and socio-economic model of environmental flow delivery to wetlands: A case study of Macquarie Marshes in Australia lead by **Fiona Dyer and Trefor Reynoldson** involving **Wendy Merrit, Quentin Grafton and Baihua Fu** (ANU); and
- Predicting the response of water quality and groundwater dependent ecosystems to climate change and land management practices: An integrated modelling approach lead by **Fiona Dyer** and involving **Evan Harrison, Duanne White and Trefor Reynoldson** (UC) **Tony Jakeman, Barry Croke and Sondoss El Sawah** (ANU), **Allan Curtis** (CSU) and **Kate Reardon Smith** (USQ)

Sue Powell started recently as a post-doctoral fellowship working with **Sue Nichols** on the evidence-based approaches to water allocation decisions and a post-doctoral fellow is about to be appointed to work with **Fiona Dyer**. More information can be found on the CRN program at: http://www.canberra.edu.au/murray-darling-crn

Fiona Dyer's swearing skills have been improving immensely as she discovers the idiot factor interfering with water quality monitoring equipment in the Murrumbidgee River. This has seen her spend a considerable amount of time in the field looking for lost equipment and coming up with devious ways of ensuring minimal interference! She has been working with **Mark Lintermans** and **Danny Wright** to investigate habitat and water quality for Murray Cod in the Murrumbidgee River. If anyone has clever suggestions on ways to prevent the lower end of the gene pool interfering with equipment she is keen to hear them.

Sally Hatton has just started her PhD with **Fiona Dyer and Mark Lintermans** looking at the water quality changes and their implication for Macquarie perch when the Enlarged Cotter Reservoir is in its filling stage. This is a unique opportunity to answer questions surrounding trophic upsurge and fish diet in a newly filling reservoir in an Australian context. **Veronika Vysna** has noticed that each time she sets up experiments in the local rivers it floods and so she has been revising her PhD objectives to account for the climate variability being experienced by a poor PhD student.

Sue Nichols, along with eWaterCRC colleagues from the University of Melbourne, have been busy developing 'EcoEvidence', which is now freely available as software to help you make scientifically defensible assessments about cause-effect in aquatic environments. More information and software available from http://www.ewater.com.au/products/ewater-toolkit/eco-tools/eco-evidence/.

The AUSRIVAS website has a fresh new look and is now hosted within the eWater Toolkit – note the new web address at http://ausrivas.ewater.com.au/index.php/home **Sue Nichols, Trefor Reynoldson,** and Bob Bailey organised a special session at the 2012 Society for Freshwater Science (formerly NABS) annual meeting in Louisville Kentucky. This session was dedicated to the late Professor **Richard Norris** and highlighted where Richard's work in developing bioassessment has brought us, and where this work is heading for the future of biological assessment of river health. Over recent years, many countries have developed large-scale monitoring programs for stream assessment, including Australia, United Kingdom, Canada, the European Union and the United States. In many cases these use predictive modelling approaches and the taxonomic composition of the benthic macroinvertebrate community as indicators of stream condition. A particular aspect of this session was a set of 10 papers looking at an array of predictive modelling approaches. It is planned that these papers will appear in a special volume of the society's journal. As a final but important note Professor Norris was announced as the recipient of the 2013 Society for Freshwater Science Award of Excellence, the highest honour the society bestows.

Evan Harrison

*The Murrumbidgee River downstream of Tantangara Dam before and during the 1500 ML/D environmental flow release (**Photos- Evan Harrison**).*

***Ben Broadhurst and Rhian Clear** conducting a rescue of endangered Macquarie perch stranded in the quarry used for construction of the Enlarged Cotter Dam (**Photo – Ben Broadhurst**).*

AUSTRALIAN RIVERS INSTITUTE
Griffith University

All is well in the Australian Rivers Institute. Our director **Stuart Bunn** was recently appointed as the Acting Chair of the National Water Commission but this has not stopped him dashing back and forth to China to sign new collaborative agreements with the Chinese Academy of Sciences (in Wuhan) and the Chinese Research Academy of Environmental Sciences in Beijing, and he has been awarded a CAS Visiting Professorship for Senior International Scientists. Stuart also visited Canada where he gave the opening plenary at the 55th Annual Conference of the International Association for Great Lakes Research (noting that, on occasion, Lake Eyre is the 18th largest lake in the world).

Sam Capon has just submitted a final report to the Cotton CRC on floodplain vegetation regeneration responses to recent flooding in the Condamine Balonne and Border Rivers. The aims of the project were to describe spatial and temporal patterns in the regeneration of major riparian tree and shrub species in these rivers following the major floods of early 2011 and to identify key factors, particularly hydrological, influencing these patterns. Sam worked on this project with Rob Rolls and exARI staff members Cassie James and Steve Mackay.

Stuart, **Nick Bond** and **Cath Leigh** have recently finished working on river health and environmental flows in China with the International Water Centre and the Chinese Ministries for Water Resources and Environmental Protection, funded by AusAID under the Australia-China Environment Development Partnership. Copies of report cards and other reports from this project can be found at http://www.watercentre.org/research/rhef. Nick and Stuart will be returning to China in September to present this work at the 5th International Yellow River Forum. Cath has also been collaborating with Rob Rolls and Fran Sheldon on studies of low flow - ecology relationships, and her research with Michele Burford on ecosystem dynamics in southeast Queensland reservoirs continues.

Many ARI members, including Cath, have just returned from the Society of Freshwater Sciences 2012 conference in Louisville, Kentucky, where they enjoyed a cruise down the Ohio River - those big rivers in North America aren't mucking about! After the conference, PhD students **Iris Tsoi** and **Alexandra Garzon** visited Prof. Cliff Dahm at University of New Mexico. In addition to presenting seminars to the lab group, they also had the opportunity to visit the Jemez Mountains field station to learn about a grass valley stream system which occurs at 2400m elevation.

Brian Fry joined Griffith last year, bringing a wealth of experience and expertise in stable isotope methods in ecology. He and **Rene Diocares** have been upgrading our stable isotope facility, with capability for C, N, S, D and O isotopes. Professor Fry is working on a new international idea, the GENIE

project, and plans to use isotopes in fish to check health of estuaries in Australia and around the world.

Tim Jardine returned to the Great White North of Canada after several years of working in the Wild Wet North with Stuart and colleagues in the TRaCK program. He has a new position as Assistant Professor at the University of Saskatchewan but will continue to take part in the research in northern Australia as part of the Northern Australia NERP Hub.

Our new Postdoctoral Research Fellows include: **Anusuya Willis** who is working with **Michele Burford.** Anusuya completed her PhD jointly with the University of Melbourne and Universite de Paris. Also, joining us is **Maria Fernanda Adame.** Fernanda, completed her PhD at the UQ Centre for Marine Studies. She has experience with coastal wetlands such as mangroves, salt marshes and cyanobacterial mats. During her stay at ARI Fernanda will collaborate with **Stuart Bunn** in the NERP project and other research projects in the Northern Territory floodplains, investigating primary production of epiphytic algae and its role as a food source for riverine food webs.

Not content with publishing two papers from her PhD on the ecology of dry stream ecosystems, the second paper making the front page of Frontiers in Ecology and the Environment, in a few weeks **Alisha Steward** is also taking part in the Brissie to Bay bike ride to raise money for MS research. Keep up the good work Alisha!

Ben Woodward finished his PhD on organic carbon dynamics in wetted terrestrial environments (supervisors Fran Sheldon and Michelle Burford) and immediately started a 'real' job in Dunedin, New Zealand. If any of us ARI scientists can brave the elements in Dunedin it is Ben. Leaving the molecular ecology lab is **Courtney Mills** who has submitted her thesis on the historic and contemporary patterns of dispersal in Australia's northern rivers: integrating genetic markers with stable isotope analyses (supervised by **Jane Hughes, Wade Hadwen, Daniel Schmidt** and **Brad Pusey**).

Our ARI Friday Seminar Series has been very successful with high attendance from ARI staff, mainly due to the hard work of **Simon Linke** who has organised a diverse array of speakers from all over the globe; most recently we have played host to Prof. Craig Primmer, University of Turku, Finland, Prof. Karen Kidd, University of New Brunswick and, Dr Neil Sims, CSIRO Melbourne. We are looking for speakers for the second half of the year. If you are interested in coming to Brisbane to share your research with us please contact s.linke@griffith.edu.au

Charlotte Hurry

Charles Sturt University

The freshwater science group at CSU have not contributed to "from the trenches" for some time, so here's an update on what we have been up to recently.....

Robyn Watts, **Keller Kopf** (Postdoctoral Fellow), **Skye Wassens** and **Max Finlayson** are participants in the CSIRO Flagship Cluster project "Ecological outcomes of altered flow regimes". The focus of our contribution to this project has been through sub-project 3, examining flow dependent ecological responses in the Edward-Wakool system, in collaboration with **Sally Hladyz, Ross Thompson** and **Mike Grace** (Monash University). Keller and Max are also involved in sub-project 4 "assessing aquatic ecosystem condition and trend'. **Robyn, Keller, Skye, Julia Howitt, Nicole McCasker, Stacey Kopf, Adrienne Burns** and several other hardworking casual staff are also working on a related project with Monash University group and **John Conallin, Josh Campbell** and **Trish Bowen** from the Murray CMA to examine ecosystem responses to the delivery of environmental water in the Edward-Wakool system for the Commonwealth Environmental Water Office.

Skye Wassens, Robyn Watts, Jennifer Spencer (OEH), Julia Howitt, Nicole McCasker, Alek Zander, Adrienne Burns and others have recently completed a project for the Commonwealth Environmental Water Office examining ecosystem responses to the delivery of environmental water in the Murrumbidgee system in June 2011. The final report is available on the CEWO website
http://www.environment.gov.au/ewater/publications/ecosystem-response-monitoring-murrumbidgee-2.html

Paul Humphries, **Tamsin Greenwood** and members of the Yorta Yorta Nation are collaborating on a midden project to describe past exploitation of aquatic fauna in the Barmah region of Victoria.

Wayne Robinson is assisting the MDBA with revised sampling plans for SRA biotic components (fish and bugs) and is working part-time on CRN fish response to flow project. He recently presented an invited paper at the Society for Freshwater Science conference in Louisville, Kentucky in a special session on bioassessment of river health dedicated to the late Professor Richard Norris.

Max Finlayson is involved in several projects in Australia and worldwide. He is working with **Anna Luksiewicz** and **Jamie Pittock** (ANU) on a NCCARF funded project looking at climate change adaptation options for wetlands in three CMA regions along the Murray. **Max** and **Daryl Nielsen** (MDFRC) have convened a working group under ACEAS to investigate dispersal and

vulnerability of Australian wetland plants to climate change. **Max** has also recently a report on future trends and responses for biodiversity as part of the UNEP's Global Biodiversity Outlook 5 that was launched on World Environment Day 2012 and will form part of UNEP's contribution to the Rio+20 conference.

Max and **Maria Bellio** have commenced a project, funded by Wetlands International South Asia, on the vulnerability of the Chilika lagoon in eastern India to climate change.

CSU is fortunate to have several adjuncts associated with our freshwater group. **Kevin Warburton** is an Adjunct Fellow at CSU, and his main preoccupation is editing Freshwater Research News (freshwaterresearch.wordpress.com), which summarises recent findings on all aspects of freshwater research from projects around the world. **Professor David Mitchell** said to inform everyone he is still alive and interested in all things freshwater. David is an active contributor to the freshwater science discussions and seminars at CSU.

Research students

Janey Adams, supervised by **Max**, **Daryl Neilson** (MDFRC) and **Julia,** has been looking at vegetation changes due to the impact of feral stock in montane peatlands in the Kosciusko area.

Adrian Clements is has recently commenced his PhD candidature at CSU with supervisors **Max** and **Daryl** (MDFRC). Adrian's project aims to investigate the ecological response of the wetland vegetation to changes in water regime in Lake Brewster. His project will involve both field observations and small scale experimental manipulations.

James Dyer has been researching the movement ecology of shrimp and factors affecting the distribution of shrimps in the southern Murray-Darling Basin.

Jamin Forbes is undertaking a joint CSU - NSW DPI Fisheries PhD project entitled —Population dynamics and implications for management of a Murray cod and golden perch recreational fishery in south-eastern Australia". His research into the effectiveness and efficiency of management initiatives including fish stocking, size limits and recreational harvest will assist evidence based decisions to be made.

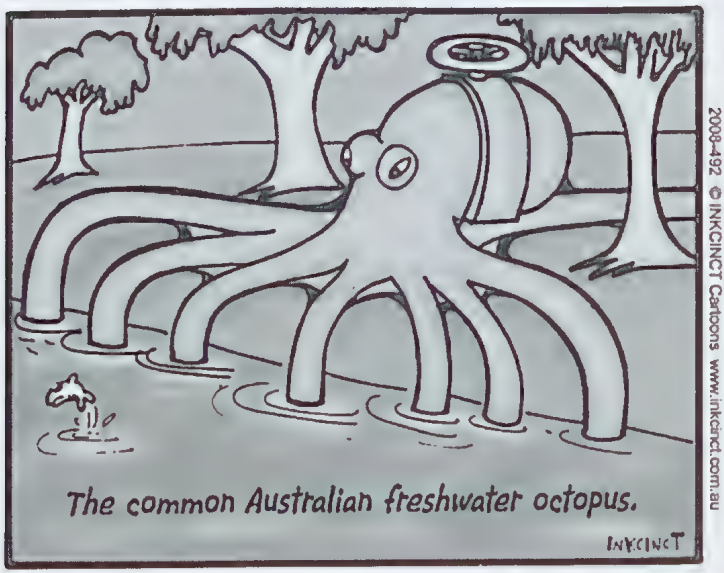
Damian Kelly is investigating the occurrence of fish traps in the Murray-Darling Basin and their relationships in riverscapes, supervised by Paul Humphries and Dirk Spennemann.

Alexandra Knight has been researching the habitat and water requirements of winter-breeding frogs in wetlands along and near the River Murray.

Stacey Kopf is in the final stage of writing her PhD thesis. She has examined the swimming and drifting abilities of the larvae of several species of native fish and has linked this information with models of water velocity in an anabranch of the Murrumbidgee River, to determine changes in habitat availability for native fish larvae under various flow scenarios.

Luke Pearce is studying southern pygmy perch behaviour, biology, habitat requirements and interactions with native and alien species.
Christine Reid is doing her PhD on freshwater mussels of the Murray-Darling. She is using palaeo and contemporary ecology techniques to measure long-term change in ecosystem function. After scratching around for historical information, Christine is about to undertake the contemporary population work with functional trait analysis.
Sylvia Zukowski has submitted her PhD thesis for examination ~~-~~Impacts of fishing regulations on the sustainability of Murray crayfish (*Euastacus armatus*), NSW: Social and biological perspectives" and is awaiting reports from her examiners. She is now working with **Nick Whiterod** in South Australia through Aquasave Consultants.

Robyn Watts



ASL EXPERTS

The following ASL members have volunteered to speak as experts on the topics listed under their name. In doing so they speak on their own behalf not on behalf of the ASL.

If you wish to be included on the list contact Dr R.Marchant at rmarch@museum.vic.gov.au

Prof A. Arthington: in stream flows, ecology of exotic fishes, conservation of rare fishes. Centre for Catchment & Instream Research, Griffith University, Nathan Qld. 4111. Phone (07)3875 7403, Fax: (07)3875 7615, email: a.arthington@mailbox.gu.edu.au

A/Prof P. Boon: bacteriological issues, wetlands. Environmental Management, Victoria University of Tech., PO Box 14428 MMC, Vic. 3000. Phone (03)9365 2214, Fax (03)9365 2465, email: paul.boon@vu.edu.au

Dr K.Bowmer: pesticides - fate and ecological impact, aquatic plant management. Charles Sturt University, PO Box 588, Wagga Wagga, NSW 2678. Phone (02)6933 2221, Fax (02)6933 2060, email: kbowmer@csu.edu.au

Dr M. Brock: temporary wetlands, aquatic plants. 47 Brightwater Rd., Blackmans Bay, TAS 7052. Phone (03) 62271812, mobile 0429721416, email: brock.margaret@gmail.com

Prof. S. Bunn: stream ecology, ecology of riparian zones, biomonitoring. Faculty of Environmental Sciences, Griffith University, Nathan, Qld 4111. Phone (07)3735 7407, Fax (07)3735 7615, email: s.bunn@griffith.edu.au

Dr M.Casanova: charophytes, temporary wetlands
273 Casanova Rd Westmere Vic. 3351
Phone 03 53502111, no fax, email amcnova@netconnect.com.au

Prof J.Davis: wetland and stream ecology, ecology of central Australian waterbodies. Department of Biological Sciences, PO Box 18, Monash University, Clayton VIC 3800. Phone: 03 9905 1063, email: Jennifer.Davis@sci.monash.edu.au

Prof. P. De Deckker: salt lakes: biology, chemistry and history; palaeolimnology towards understanding past environmental change. Dept. of Earth & Marine Sciences, The Australian National University Canberra ACT 0200. Phone: 02 6125 2070, fax: 02 6125 5544, e-mail: patrick.dedeckker@anu.edu.au

Dr. M. Douglas: tropical freshwater ecology, intermittent streams, tropical floodplains. School of Biological and Environmental Sciences, Northern

Territory University, Darwin, NT 0909 Phone: (08)8946 7261, Fax: (08)8946 6847, email: michael.douglas@ntu.edu.au

Dr S.Eberhard: groundwater dependent ecosystems (subterranean fauna), caves and karst. Subterranean Ecology, Scientific Environmental Services, Greenwood WA Phone: 08 92039551

Dr M. Finlayson: wetland ecology and management; mining and agriculture impacts; inventory and assessment, Ramsar convention. Institute of Land, Water and Society, Charles Sturt University, Albury NSW. Phone: 02 60519779, email mfinlayson@csu.edu.au

Dr A. García: taxonomy, ecology, biology and biogeography of extant and fossil charophytes. School of Earth and Environmental Sciences, University of Wollongong NSW 2522 Phone: (02) 42215966 Fax: (02) 42215703, e-mail: adriana@uow.edu.au

A/Prof M.Grace: nutrient cycling and biogeochemical processes. Chemistry Department, Monash University,Clayton, Victoria, 3800. Phone (03)9905 4078, Fax (03)9905 4196, email: michael.grace@sci.monash.edu

Dr T. Grant: platypus biology. Biological Science, University of NSW, PO Box 502, Cronulla, NSW 2230. Phone (02)9527 2862, Fax (02)9527 2862, email: t.grant@unsw.edu.au

Associate Professor M. Greenway: Constructed wetlands, Melaleuca wetlands, biogeochemical processes. School of Environmental Engineering, Faculty of Environmental Engineering, Griffith University Nathan Qld 4111. Phone: (07)3875 7486, Fax: (07)3875 7404, email: m.greenway@mailbox.gu.edu.au

K. Hortle: Fisheries and environment, impact of mining, impact of development in SE Asia and PNG on rivers. 23A Waters Grove, Heathmont VIC 3135 Phone: (03) 9720 5891, email: kent_hortle@bigpond.com

A/Prof P. Horwitz: conservation of freshwater invertebrates. Centre for Ecosystem Management, Edith Cowan University, Joondalup Drive, Joondalup, WA 6027. Phone (08)9400 5558, Fax: (08)9400 5070 email: phorwitz@cowan.edu.au

Prof. P.S. Lake: stream ecology, conservation freshwater biota. Department of Biological Sciences, PO Box 18, Monash University, Clayton, Vic. 3800. Phone (03)9905 5653, Fax:(03)9905 5613 email: sam.lake@sci.monash.edu.au

Dr C. McCullough: mine water remediation and management, mining pit lakes, acid mine drainage, acid sulfate soils, ecotoxicology. Edith Cowan University, 270 Joondalup Drive, Joondalup. Western Australia 6027. Phone: +61 8 6304 5143, email: c.mccullough@ecu.edu.au

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